

In the Claims:

Please cancel claim 160 without prejudice or disclaimer. The following listing of claims replaces all prior versions and listings of claims in the case.

1 - 140. (Canceled)

141. (Currently amended): A nucleic acid ladder consisting essentially of a plurality of double stranded nucleic acid fragments, each fragment having a size in base pairs of between 20 kb and 100 base pairs, a copy number, a mass, and a relative mass wherein the mass of each fragment is the size in base pairs of the fragment multiplied by the copy number of the fragment, wherein the relative mass of each fragment is the mass of the fragment divided by the sum of the masses of all of the fragments, wherein the relative mass of any one fragment of the plurality is no more than 3 time the relative mass of any other fragment of the plurality, wherein the plurality comprises at least two of the plurality of nucleic acid fragments having have a size greater than 1 kb, and wherein the plurality comprises at least two of the plurality of nucleic acid fragments having have a size less than 1 kb.

142 - 149. (Canceled).

150. (Currently amended): The nucleic acid ladder of claim 141, wherein the plurality comprises at least 3 of the plurality of double stranded nucleic acid fragments having have a size greater than 1 kb, and wherein the plurality comprises at least 3 of the double stranded nucleic acid fragments having have a size less than 1 kb.

151 - 154. (Canceled).

155. (Currently amended): The nucleic acid ladder of claim 141, wherein the plurality comprises at least 4 of the plurality of double stranded nucleic acid fragments having have a size greater than 1 kb, and wherein the plurality comprises at least 4 of the plurality of double stranded nucleic acid fragments having have a size less than 1 kb.

156. (Currently amended): The nucleic acid ladder of claim 141, wherein the plurality comprises at least 5 of the plurality of double stranded nucleic acid fragments having have a size greater than 1 kb, and

wherein ~~the plurality comprises at least 5 of the plurality of double stranded nucleic acid fragments having~~ have a size less than 1 kb.

157. (Previously presented): The nucleic acid ladder of claim 141, wherein the plurality of double stranded nucleic acid fragments are stained with a detectable label.

158. (Previously presented): The nucleic acid ladder of claim 157, wherein the detectable label is [2-[N-(3-dimethylaminopropyl)-N-propylamino]-4-[2,3-dihydro-3-methyl-(benzo-1,3-thiazol-2-yl)-methylidene]-1-phenyl-quinolinium]+.

159. (Previously presented): The nucleic acid ladder of claim 157, wherein the detectable label is ethidium bromide.

160. (Canceled).

161. (Canceled).

162. (Previously presented): The nucleic acid ladder of claim 141, wherein the relative mass of any one fragment of the plurality is no more than 2.5 times the relative mass of any other fragment of the plurality.

163. (Previously presented): The nucleic acid ladder of claim 141, wherein the relative mass of any one fragment of the plurality is no more than 2 times the relative mass of any other fragment of the plurality.

164. (Previously presented): The nucleic acid ladder of claim 141, wherein the relative mass of any one fragment of the plurality is no more than 1.5 times the relative mass of any other fragment of the plurality.

165. (Previously presented): A nucleic acid ladder comprising a plurality of double stranded nucleic acid molecules, wherein three or more of the molecules are of a size selected from the group consisting of:

- (a) 100 base pairs,
- (b) 200 base pairs,
- (c) 300 base pairs,
- (d) 400 base pairs,

- (e) 500 base pairs,
- (f) 650 base pairs,
- (g) 850 base pairs, and
- (h) 1650 base pairs;

wherein two or more of the molecules are of a size selected from the group consisting of:

- (a) 1 kilobase pairs,
- (b) 2 kilobase pairs,
- (c) 3 kilobase pairs,
- (d) 4 kilobase pairs, and
- (e) 5 kilobase pairs;

wherein a copy number of each of the molecules is such that each molecule has a relative mass that is no more than three times the relative mass of another molecule.

166. (Currently amended): The nucleic acid ladder of claim [[166]]165, wherein four or more of the fragments are between 100 base pairs and 1650 base pairs.

167. (Previously presented): The nucleic acid ladder of claim 166, wherein five or more of the fragments are between 100 base pairs and 1650 base pairs.

168. (Previously presented): The nucleic acid ladder of claim 166, wherein three or more of the fragments are between 1 kilobase pairs and 5 kilobase pairs.

169. (Currently amended): A nucleic acid ladder comprising a plurality of double stranded nucleic acid molecules, wherein three or more of the molecules are of a size selected from the group consisting of:

- (a) 100 base pairs,
- (b) 200 base pairs,
- (c) 300 base pairs,
- (d) 400 base pairs,
- (e) 500 base pairs,
- (f) 650 base pairs,
- (g) 850 base pairs, and
- (h) 1650 base pairs;

wherein two or more of the molecules are of a size selected from the group consisting of:

- (a) 1 kilobase pairs,
- (b) 2 kilobase pairs,
- (c) 3 kilobase pairs,
- (d) 4 kilobase pairs, and
- (e) 5 kilobase pairs;

wherein a copy number of each of the molecules is such that each molecule has a relative mass that is no more than three times the relative mass of another molecule and one or both of the following:

i) wherein the nucleic acid ladder further comprising comprises a highlight at least one additional fragment molecule having a size in the range of 100 base pairs to 5 kilobase pairs and having a relative mass that is three times greater than the relative mass of other fragments-molecules in the composition, or;

ii) wherein at least one of the three or more molecules has a relative mass that is three times greater than the relative mass of the other molecules in the composition.

170. (Previously presented): The nucleic acid ladder of claim 169, wherein four or more of the fragments are between 100 base pairs and 1650 base pairs.

171. (Previously presented): The nucleic acid ladder of claim 169, wherein five or more of the fragments are between 100 base pairs and 1650 base pairs.

172. (Previously presented): The nucleic acid ladder of claim 169, wherein three or more of the fragments are between 1 kilobase pairs and 5 kilobase pairs.

173. (Previously presented): The nucleic acid ladder of claim 169, wherein the highlight fragment has a relative mass that is at least 5 times greater than the other fragments.